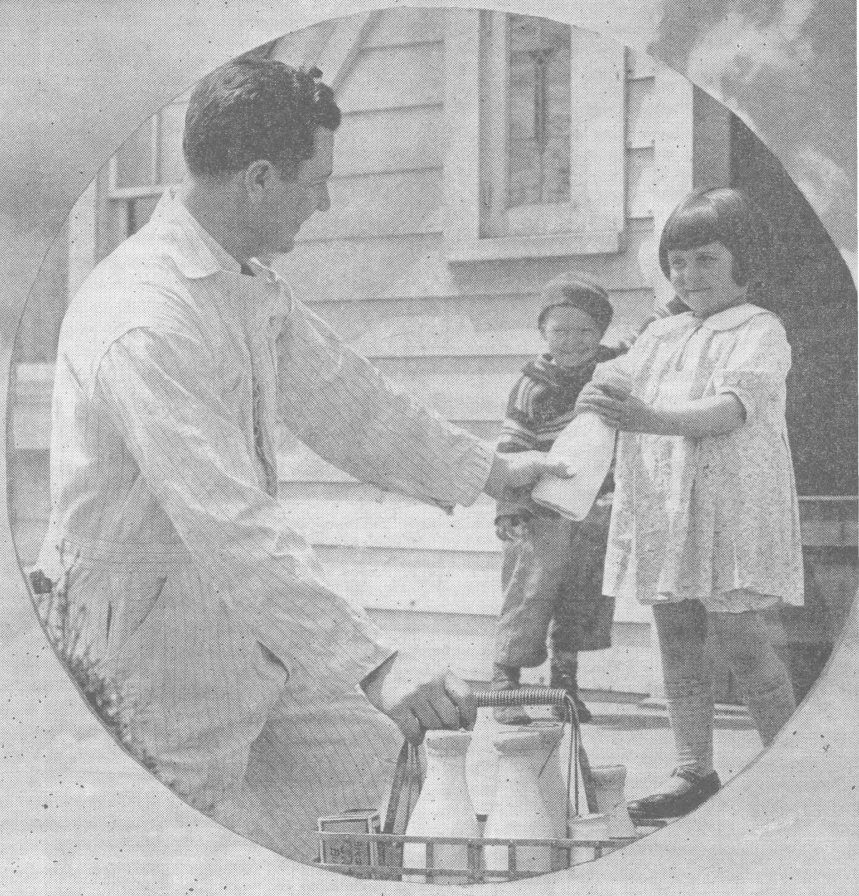
Bulletin 284



Agricultural
Extension
Service
Ohio State
University

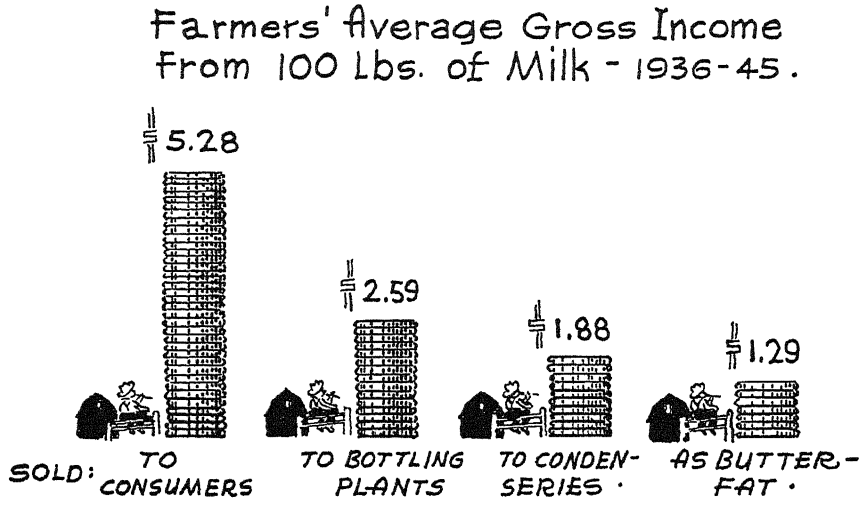
Ways to Increase Your Milk Check

Ways to Increase Your Milk Check

By
C. F. Christian, Extension Economist, Ohio State University

Ohio farmers with milk to sell have had a choice of markets because the demand for all dairy products rose sharply at the beginning of World War II.

Thousands of farmers, during the early 40's, stopped selling sour cream and began selling whole milk to condenseries and cheese factories. Others transferred their milk from manufacturing plants to city bottling plants.



How can a dairy farmer choose the best market? By *best* we mean the market that will return the greatest net income over a long period.

Let's take a look at average prices paid for butterfat, for milk used for manufacture, and for milk used in bottles. We should consider, too, how dairy farmers who sell directly to consumers compare in gross income with those selling milk at wholesale.

Producer-distributors received an average of $5.28 per hundred pounds of milk sold directly to consumers in the 10 years, 1936-45.

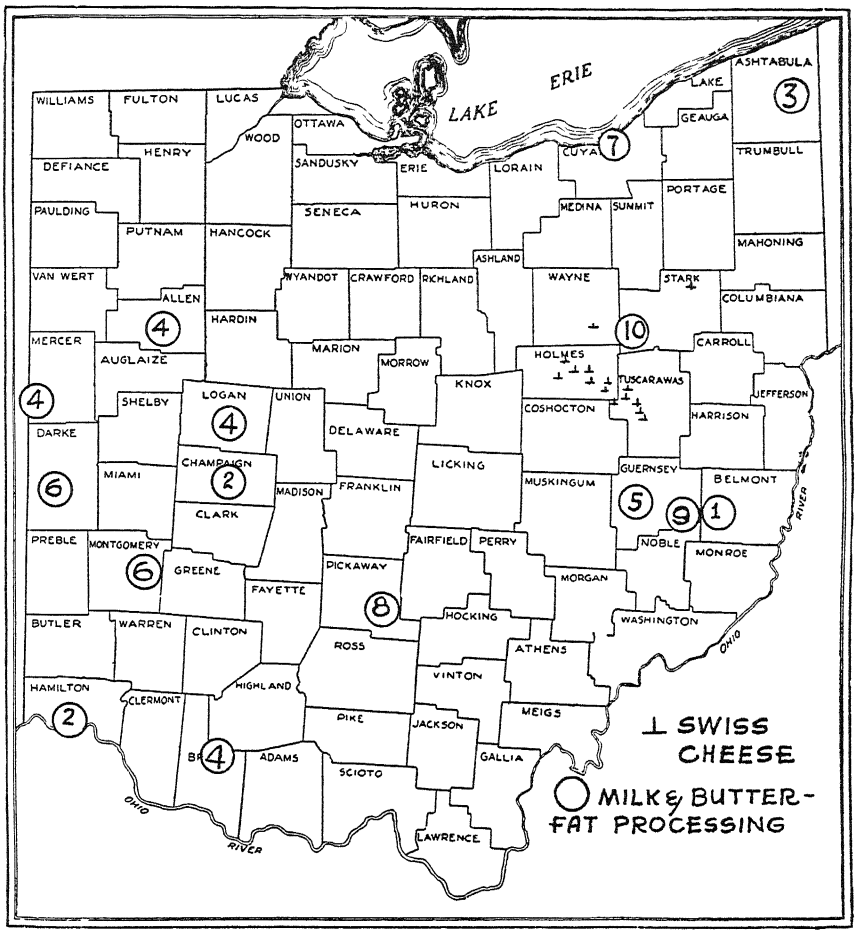
Farmers selling at wholesale to city bottling plants received an average of $2.59 per hundred pounds of 3.5 per cent milk in the same 10 years.

Condenseries paid their producers from 1936 through 1945 an average of $1.88 for 3.5 per cent milk.

At the bottom of the price ladder, we find farmers who sold sour cream. Their returns from the butter fat in 100 pounds of 3.5 per cent milk averaged $1.29 for 10 years.

Remember these prices are gross returns and United States averages.

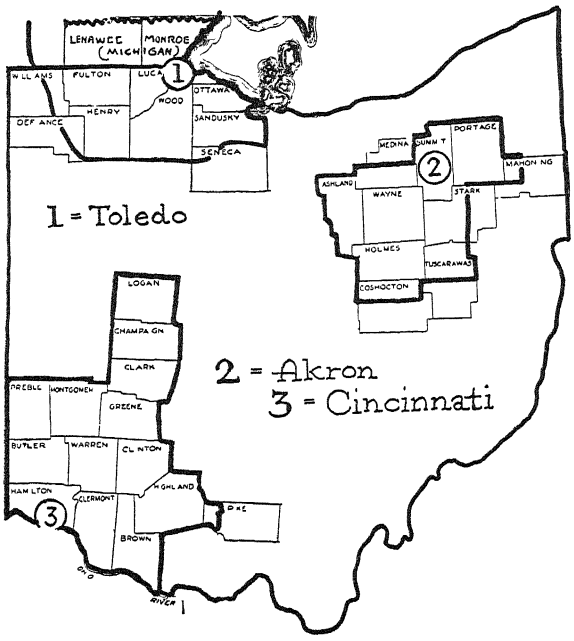
The producer-distributor has more money tied up in his dairy enterprise for equipment to cool and bottle milk and in delivery trucks than do producers who sell to distributors or manufacturers. His labor for bottling and



Farmer Owned Dairy Plants, 1947

1 Barnesville
2 Urbana and Cincinnati
3. Dorset
4 Lima, Sardinia, Belefontaine and Fort Recovery
5. Cambridge
6. Dayton and Greenville
7. Cleveland
8. Circleville
9 Quaker City
10. Brewster

delivery has to be paid out of the gross income. The proportion of milk and cream sold by farmers directly to consumers has declined steadily since 1934. In that year, producer-distributors handled 9.2 per cent of all milk and cream sold from farms. In 1945 this percentage was 5.6. In hard times, dairy farmers have more to gain by direct selling.



Metropolitan Milk Markets of Ohio (showing milksheds supplying those markets in 1947).

Farmers delivering their own milk to consumers in Connecticut spent about 8 cents per quart when they delivered 25 quarts daily; 4 cents per quart on 125 quarts per day; and 3½ cents per quart when the daily volume rose to 375 quarts. If we take the 4 cent figure as the average, this is equivalent to $1.86 per 100 pounds of milk. These costs were reported in 1942. In the next 5 years, particularly since price controls ended, the cost plies rose 40 to 50 per cent.

Know Production Costs

Producers selling milk at wholesale in large cities have higher production costs than farmers selling milk for manufacture. The difference in money cost may be less than is commonly supposed.

Two groups of farmers in northwestern Ohio gave Ohio State University figures on cost of producing milk in the autumn of 1946. The investment in equipment to cool milk and wash milk utensils and in milking machines averaged about $61 per cow on farms producing milk for bottling; about $36 per cow on farms producing milk for condenseries. Other factors influencing costs were about the same on these two groups of farms. The difference in cost factors between milk for bottling and milk for manufacture may be greater in other sections of Ohio than in the highly developed dairy section west of Toledo.

Farmers selling sour cream are not so far behind in net income as the gross returns indicate. Cream sellers save on transportation. The average hauling rate into 21 cities during December, 1946, was 31 cents per hundredweight of milk.

The skimmilk left on the farm from 100 pounds of milk when 30 per cent cream is sold has a feeding value equal to 40 pounds of ear corn, if fed to fat hogs; or is equal to 9 pounds of tankage or meat scrap, if fed to growing pigs, young chickens or laying hens.

Get the Facts and Use Your Pencil

More than 600 milk buyers and 450 cream buyers are licensed in Ohio this year (1947). Each of these buyers is supposed to report monthly to the Ohio Department of Agriculture the prices paid farmers for milk and butterfat.

If you want to know the price paying record of a licensed buyer, write to Supervisor of Dairy Trade Practices, Ohio Department of Agriculture, State Office Building, Columbus, Ohio.

Or, you can send for the "Ohio Monthly Dairy Report" and the "Ohio Fluid Milk Price Report." These reports contain prices paid and offered in 21 city markets and prices paid by condenseries and cheese factories. To get your name on the mailing list for these reports, write to Glenn S. Ray, Agricultural Statistician, New Federal Building, Columbus, Ohio.

Compare Prices Carefully

Before fair price comparisons can be made between markets or buyers within a single market, we must have answers to these questions:

(1) What is the basic test (3.5 or 4 per cent)?
(2) What is the butterfat differential?
(3) What is the hauling rate?
(4) Does the buyer pay quality or quantity bonuses?
(5) Does payday come once or twice a month?

When payday comes once a month, farmers extend up to 50 days' credit to the milk buyer. That makes it important to check on the financial responsibility of the buyer. It is not uncommon for a milk buyer to operate through two incorporated companies, one buying milk from farmers, the other processing and distributing.

When a milk or a cream buyer applies for a license at the beginning of each calendar year, the Supervisor of Dairy Trade

Cleveland milk market and its milkshed.

Columbus milk market and its milkshed.

Practices demands a financial statement. The license is issued, if that statement provides reasonable assurance that farmers will be paid.

When a new or unknown buyer solicits your shipments, it is good business to ask your banker for a credit report on that buyer.

If there is any delay beyond the agreed time for payment, you had better investigate.

If the buyer asks for more than the usual amount of credit, better find another buyer. At least, you should make sure that you have evidence of the debt, a promissory note for the amount overdue and a mortgage on property of the debtor.

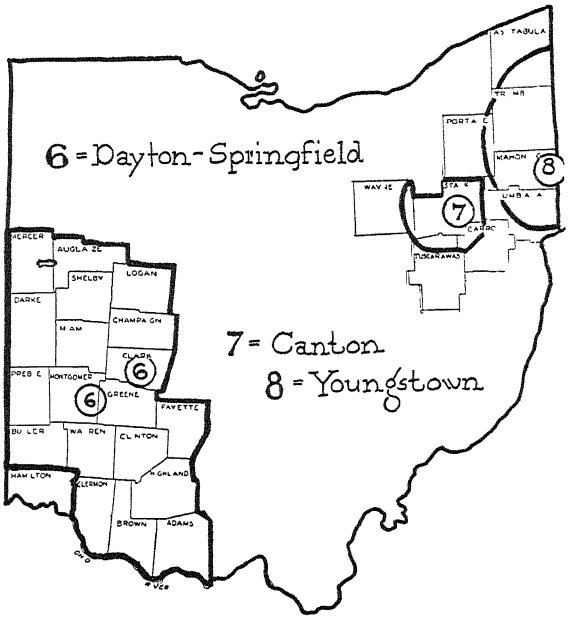
Use Cooperative Marketing Services

Marketing cooperatives serve producers in all Ohio cities with more than 100,000 population, and in 11 of the 14 cities in the 25,000 to 100,000 population class.

About 50,000 Ohio farmers shipping to condenseries and cheese factories have up to this time marketed their milk individually. Cooperatives at Toledo and Columbus render marketing service to producers supplying condenseries. In the Swiss cheese area of Holmes and Tuscarawas Counties, factory committees represent producers. With these exceptions, marketing services by bargaining cooperatives are confined to the fluid milk markets in Ohio.

The bargaining cooperatives negotiate prices and terms of sale with milk buyers, contract for trucking or own and operate milk trucks, verify weights and butterfat tests at buyers' plants, guarantee payment for milk, and represent their members before boards of health, state and national legislative committees and at hearings in markets under federal milk marketing orders. A list of all active bargaining cooperatives may be obtained by writing to Dairy Marketing Specialist, Room 106 Townshend Hall, Ohio State University, Columbus 10, Ohio.

Farmer-owned and operated dairy cooperatives afford their patrons opportunity to share in margins obtained in manufacturing and distribution of dairy products. Location of farmer-owned and operating dairy plants is shown on the map, see page 3. At Cincinnati, we have one of the largest farmer-owned distributing companies in the country. Farmers interested in processing and distributing their own dairy products should visit the cooperative plants before investing in land, buildings, and equipment. They will then have a better idea of the cost of additional equipment needed.



Metropolitan Milk Markets of Ohio (showing milksheds supplying those markets in 1947).

Pick a Good Salesman with More than One Line

The farmer and his cooperative gain when the milk bottler and milk manufacturer have aggressive sales forces, insist on high quality in the raw materials and finished products, and seek market outlets where quality commands a price premium. The farmer and his cooperative benefit, too, when milk is delivered to plants turning out a variety of dairy products. The values of milk and butterfat in evaporated milk, cheese, dried milk, ice cream mix, butter, and fluid milk over a long period maintain fairly consistent relations one with the others. But in the short run, one of these products may be in short supply in relation to demand with a correspondingly higher value.

A plant and sales organization, equipped to process and merchandise milk and butterfat in the higher priced forms, is to be preferred, other things being equal, to an outlet incapable of flexible operation. Although bottled milk and cream command higher prices than other dairy products, the small bottling plant without permanent access to manufacturing facilities for handling the seasonal excess of production over sales may prove to be a less satisfactory outlet than a combination bottling and manufacturing plant.

Keep a Jump Ahead of Quality Requirements

Buying milk and cream on quality grades was laid on the shelf when we had to have all-out production. Up-grading is getting under way again. Boards of health are revising milk codes. Some manufacturers will demand milkhouses and good cooling facilities.

The Standard Milk Ordinance of the U. S. Public Health Service has been adopted in 60 Ohio health districts. Municipal milk codes and the Standard Ordinance govern production of milk for bottling in the areas shown on the maps on pages 4, 5, 6, and 7.

Many farmers who have enlarged their milkhouses, installed water heaters, wash vats, and mechanical refrigeration for cooling say they would not go back to the old ways. Dairy chores take less time. They have a choice of markets.

Plan Before You Build

Get an inspector from the market to which you intend to ship milk to suggest ways of meeting the milk code and to approve your plans before you spend any money on materials or labor to build a milkhouse or alter the dairy stable. How much can a farmer afford to spend on stable improvements, a milkhouse, and gadgets to care for milk after he has the inspector's approval of his plan? Let's work out an example:

Assume milk sold in one year..... 50,000 lbs.

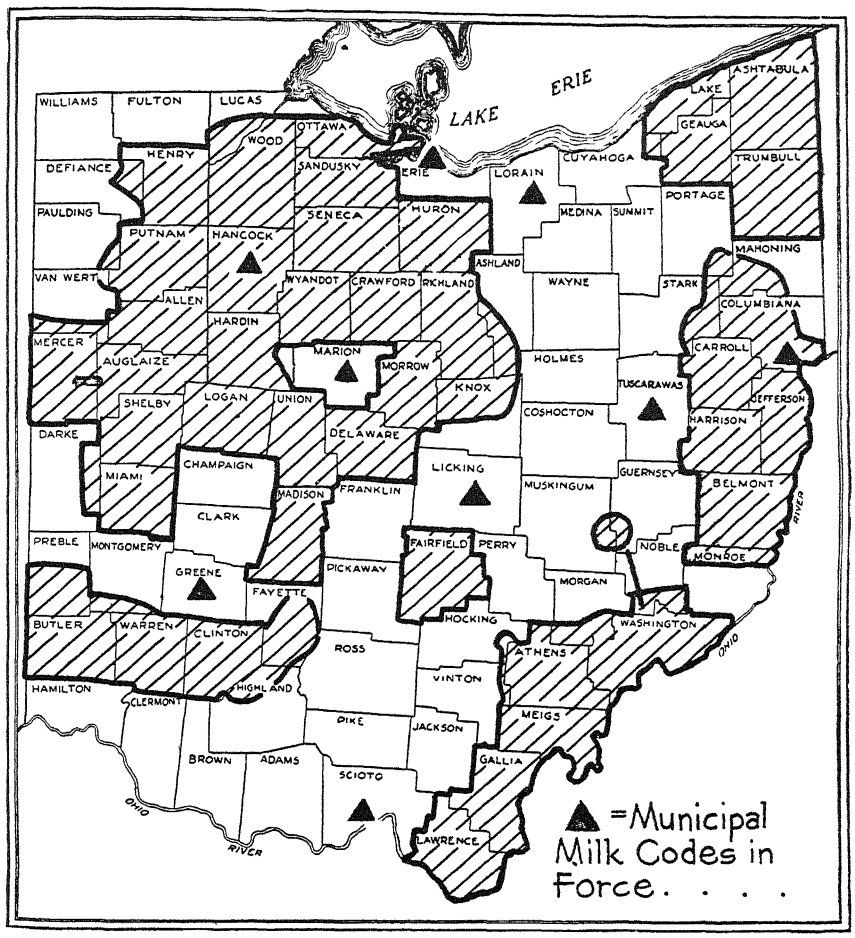
	In 21 Cities	In Ohio Mfg. Plants
Average price for 3.5 per cent milk during 1946.	$4.07	$3.42
	50,000 lbs.	50,000 lbs.
	x $4.07	x $3.42
Gross return	$2,035	$1,710
	—1,710	
Gain	$ 325	

Advantage in selling to city markets per 100 lbs..... $0.65

Suppose the farmer has to borrow $2,000 at the bank to make the improvements which enable him to get a price advantage of 65 cents per 100 pounds of milk.

Charges to be met: Interest at 5% on $2,000.....	$100
Depreciation in 20 years, another 5% on $2,000.....	100
Total carrying charge.....	$200
	$325
	—200
Balance to be applied on loan the first year.....	$125
Years required to pay back $2,000 with interest at 5% on unpaid balance...	12

Most bankers would not be willing to let a loan of this kind drag out for 12 years. Either the borrower would have to apply income from some other enterprise; or he would have to increase the size of his herd to get a larger income; or he would have to make his improvements for less than $2,000.



Grade A Milk Production Areas, U. S. Standard Milk Ordinance in force.

Milk of high quality can be produced without a lot of money invested in stabling, milkhouse, and equipment. *Keep it clean and keep it cold* expresses the fundamentals of quality. But there's a lot of satisfaction and some advantage in marketing to be gained by having the "gadgets."

Have Milk to Sell When the Market Is Short

Consumers want about the same quantities of dairy products (with the possible exception of ice cream) throughout the year. The city family of two children and two adults needs 3 quarts of milk every day. This family will consume about 1 pound of butter, ½ pound of cheese, and 1½ cans of evaporated milk every week.

Because butter, cheese, and evaporated milk can be stored in the season of high production, there is no problem about supplying these dairy products in uniform amounts throughout the year.

Not so with bottled milk and cream! When a city family of four wants 3 quarts of milk a day in May and June, farmers send 5 quarts to market. In November and December, when the demand is still 3 quarts daily for the family, farmers supply about 3 1/7 quarts.

The extra 2 quarts in May and June must be diverted to manufactured products and sell for a lower price than bottled milk. The shortage of milk for cream and flavored milk drinks in November and December is made up by buying uninspected milk from a manufacturing plant, under a temporary permit issued by the city board of health to a condensery or cheese factory.

Condenseries and cheese factories accept high production in the early summer and low production in late fall and winter. Milk is usually cheap in May and June. The evaporated milk and cheese made from cheap milk sell for the same price when they come out of storage 60 to 120 days later as products made from higher priced milk delivered in the fall and winter.

The bottling plant needs that 3 quarts of milk every day for the city family.

Cut Costs on Winter Milk

Why do dairy farmers go on year after year supplying 5 quarts and then 3 quarts daily to the city family that needs 3 quarts every day?

The answer is simple. Farmers figure they make more net income that way.

The latest study of the cost of producing milk in Ohio indicates that even production throughout the year, or higher production in fall and winter than the average for the state result in lowering the annual cost of producing milk and raising production per cow. High production per cow is more important in determining net profit, according to the Ohio data, than is seasonal variation in costs of production.

A study of milk production in New York indicates that, if 100 represents the average cost of producing milk throughout the year, the cost in May and June is 70 and the cost in the last quarter of the year is 125.

In contrast to this 55 point variation between the May-June low and the October-November-December high in the cost of producing milk, the seasonal change in prices paid for butterfat and milk are represented by 90 in May and June and by 110 in October-November-December. To take advantage of this average spread of 20 points in milk prices, we need a system of feeding and management to produce milk more evenly throughout the year at more uniform cost. To get even production at uniformly low cost, the dairy farmer must breed heifers for fall freshening and keep more good cows.

Breed Heifers for Fall Freshening

Every dairyman knows it is difficult and expensive to change the freshening time on mature cows. Avoid breeding heifers for the first time between March 15 and June 15. That gets away from starting the heifer as a spring freshener. Breed just as many heifers between September 15 and the first of the year as possible. That timing starts them out as late summer and fall freshening cows.

More important than timed breeding to get even, low-cost, milk production is the right system of feeding. We think the Trumbull County experiment farm has worked out that system for farmers producing milk for bottling. And here is how the Trumbull County farm produces that even supply, at a low feed cost:

First: This herd is kept "knee-deep" in pasture from the middle of May to the end of the grazing season. The permanent pasture is limed, fertilized, and clipped.

Second: Cows producing less than 20 pounds of milk per day (and the dry cows) receive no grain. Milking cows get 1 pound of a 12 per cent protein grain mixture for every 3 pounds of milk over 20 pounds. That is, a cow producing 29 pounds of milk gets 3 pounds of grain. (29 — 20 = 9 pounds of milk per day ÷ 3 = 3 pounds of grain.)

Third: Silage is fed at the rate of only 20 pounds per day to big Holsteins.

Fourth: Enough high-quality, alfalfa-timothy-ladino clover hay, mow-dried, is put into the mangers so the cows have all they will eat with some left over to be fed to other stock or used for bedding. Hay consumption under this system averages 3 tons per cow per year, or about 30 pounds per day for the 6 or 7 months in stable.

The Trumbull system of feeding gets high production in late summer and early autumn when cows on the average permanent pasture can't get enough to eat to make a lot of milk.

Enough acres of alfalfa-timothy-ladino clover are grown to produce the 3 tons of hay per cow needed for winter PLUS all the green feed this herd of about 20 cows will eat in addition to permanent pasture. That takes about 2 acres for every cow.

And here's the proof that it works:

Average Daily Shipments of Milk 1940-45
(100 = yearly production ÷ 365)

	Jan.	*Feb.*	*Mar.*	*Apr.*	*May*	*June*	*July*	*Aug.*	*Sept.*	*Oct.*	*Nov.*	*Dec.*
1200 N.E. Ohio farms.....	85	90	100	111	131	128	112	97	93	84	79	83
Trumbull farm	92	100	97	113	104	98	91	91	110	109	98	98

The Trumbull station herd has average production of about 11,000 pounds of milk and 380 pounds of butterfat per cow. The amount of grain fed has been reduced from 34.5 pounds to 19.0 pounds per 100 pounds of milk.

Keep More Good Cows

Dairy farmers with the larger herds have these advantages over owners of small herds: (1) Milk buyers and milk haulers prefer "big shippers." (2) Investments in barn, milkhouse, and equipment spread over more cows lower the overhead cost of making milk. (3) Output of milk per man is higher in the large herds.

Cornell University studied 4,600 New York dairy farms to find out what effect size of herd has on labor efficiency. In herds of 6 cows, labor used on the dairy produced 9/10 can of milk per man per day. In herds of 22 cows, each man produced 1.96 cans of milk per day.

Owner-sampler testing in 63 Ohio counties and artificial insemination service in 70 Ohio counties make it possible for many more dairy farmers to keep more good cows.

Bulletins Giving Additional Information on Milk Marketing

A Study of Cooperative Milk Marketing Associations in Four Ohio Markets.
Ohio Agricultural Experiment Station, Wooster, Ohio, Bul. 574—1936.

Stability in Milk Markets.
U.S.D.A. DM 3 Marketing Information, Washington, D. C.; Series—1938.

Using Your Fluid Milk Co-op.
Farm Credit Administration, Washington, D. C.; Circular 14—1939.

Economic Analysis of Bargaining Problems of Milk Cooperatives.
Farm Credit Administration, Washington, D. C.; Circular C-104—1939.

The Ohio Farmer and His Milk Market.
Ohio Agricultural Experiment Station, Wooster, Ohio, Bul. 614—1940.

The Evaporated Milk Industry.
University of Wisconsin, Madison, Wisc., Research Bul. 156—1945.

Milk in War and Peace.
Cornell University, Ithaca, N. Y., Farm Economics—August, 1946.

Dairy Farming Based on Liberal Use of Meadow Crops.
Ohio Agricultural Experiment Station, Wooster, Ohio, Bul. 662—1946.

August, 1947

Ohio State University and the United States Department of Agriculture, Cooperating Agricultural Extension Service, H. C. Ramsower, *Director,* Columbus, Ohio
Printed and distributed in furtherance of Acts of May 8 and June 30, 1914